

**Appl. No.** : **10/601,147**  
**Filed** : **June 19, 2003**

### **REMARKS**

The February 10, 2005 Office Action was based upon pending Claims 1-39. This Amendment amends Claims 1, 2, 4, 5, 8, 15-17, 19, 20, 23-26, 30, 32, and 35-38 and adds new Claim 40. Thus, after entry of this Amendment, Claims 1-40 are pending and are presented for consideration.

### **Drawings**

The February 10, 2005 Office Action states that the drawings are objected to as failing to comply with 37 C.F.R. §1.84(p)(5) because the drawings include characters not mentioned in the description. In particular, the Office Action refers to reference numeral 203 in Fig. 2.

Applicants have amended paragraph [0017] of the specification to change reference numeral 200 to 203. Reference numeral 200 in [0016] refers to an array of optical elements. As amended herein, reference numeral 203 in [0017] refers to the “optical elements” themselves. Applicants maintain that no new matter has been added as correspondence between 203 and “optical elements” is evident from the context of paragraph [0017] and Figure 2.

Applicants respectfully request, therefore, that the objection to the drawings be withdrawn.

### **Claim Rejections**

Claims 1-11, 14-25, 28-30, 31, and 37-39 are rejected under 35 U.S.C. §102(a) as being anticipated by Bosco, et al. (U.S. Publication. No. 2003/0015707).

Applicants maintain that Claims 1-11, 14-25, 28-30, 31, and 37-39, as amended, as well as new Claim 40 are patentable over Bosco, because Bosco fails to teach each of the limitation recited in the claims. Bosco, for example, does not show an array of optical grating couplers fabricated on a first substrate and an array of optical devices on a second substrate where the array of optical grating couplers is optically aligned to the optical devices as is recited in amended Claim 1. Similarly, Bosco does not show a plurality of optical grating couplers fabricated on a first substrate and a plurality of optical devices fabricated on a second substrate, where the plurality of optical grating couplers is optically aligned to the plurality of optical devices as recited in amended Claim 16.

**Appl. No.** : **10/601,147**  
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The Office Action states with reference to Claim 31 that Bosco discloses a monocrystalline substrate 22 that is a silicon substrate and a second substrate made of indium-phosphide and that these substrates are chemically bonded together. The Office Action cites paragraphs [0043], [0055], and [0056].

The indium phosphide layer referred to by Bosco, however, is not a substrate (such as substrate 22) but rather is a semiconductor layer 26 epitaxially grown on the silicon substrate 22. Accordingly, Bosco fails to teach the claimed invention.

Since Bosco fails to disclose each of the limitations recited in the claims, Applicants respectfully request that the rejection of Claims 1-11, 14-25, 28-30, 31, and 37-39 under 35 U.S.C. §102(a) as being anticipated by Bosco be withdrawn.

Claims 12 and 27 are also rejected under 35 U.S.C. §103(a) as being unpatentable over Bosco, et al., in view of Magne, et al. (U.S. Patent No. 6,226,426).

The comments presented above with respect to Bosco apply as well to this rejection. Additionally, Applicants point out that Magne does not teach each of the limitations included in Claims 12 and 27. Claim 12 specifically recites that the mode field of the array of optical grating couplers is designed to match the mode field of the array of optical devices. Claim 27 recites that the mode field of the plurality of optical grating couplers is designed to match the mode field of the plurality of optical devices. The Office Action states that Magne teaches mode matching to increase the coupling efficiency between the grating coupling to the etched zone. Mode matching, however, is never shown. Instead, Magne states in column 8, lines 29-33, the following.

In order to increase the effectiveness of diffraction of the grating by concentrating the field of the fundamental mode on the etched zone, an 8 nm layer of alumina, and with an optical coefficient that is higher than that for silica, is generally deposited above the etched zone.

Since the combination of Bosco and Magne fail to disclose the limitations recited in Claims 12 and 27, Applicants respectfully request that the rejection under 35 U.S.C. §103(a) as being unpatentable over Bosco in view of Magne be withdrawn.

Claims 32 and 34 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kamon (U.S. Patent No. 5,285,258) in view of Ford (U.S. Patent No. 6,272,272) and Anderson,

Appl. No. : 10/601,147  
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et al. (U.S. Publication No. 2003/0057363). Additionally, Claims 32, 35 and 36 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kamon in view of Ford as applied to Claim 32 and 34 above, and further in view of Giboney, et al. (U.S. Patent No. 6,318,909).

This combination of references, however, fails to teach the limitations recited in Claims 32 and 34-36, as amended. For example, the combination of cited references fails to disclose a method for attaching an array of optical devices formed on a first substrate to an array of optical grating couplers formed on a second substrate that includes stacking the first and second substrates such that the first and second substrates are substantially parallel to each other.

Since the combination of references fails to teach the claimed invention, Applicants respectfully request that the rejections under 35 U.S.C. §103(a) as being unpatentable over Kamon, Ford, and Giboney be withdrawn.

#### CONCLUSION

Applicants have endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of the above remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested.

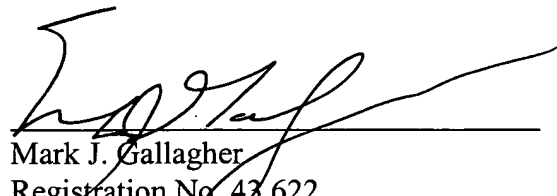
Respectfully submitted,

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Dated: \_\_\_\_\_

5/10/05

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